

Applicant : Yanbin Shao
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Filed : February 12, 2002
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Attorney's Docket No.: 13854-009601

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A circulator comprising:
 - a first input port operable to receive light including a first and a second component having a first and a second polarization, respectively;
 - a polarization beam splitter optically coupled to the first input port and operable to reflect the first component of light transmitted from the first input port of having the first polarization and pass the second component of light transmitted from the first input port of having the second polarization;
 - a reflector optically coupled to the polarization beam splitter;
 - a non-reciprocal device optically coupled to the reflector and operable to convert the first component of light of the first polarization into light of the second polarization;
 - a first output port operable to receive the first component of light of the second polarization from the non-reciprocal device; and
 - a second output port operable to receive the second component of light of the second polarization from the polarization beam splitter substantially contemporaneously in time with the receipt of the first component of light at the first output port.
2. (Previously Presented) The circulator of claim 1, further comprising an isolator optically coupled to the polarization beam splitter.
3. (Previously Presented) The circulator of claim 1, further comprising a polarizer optically coupled to the non-reciprocal device.
4. (Cancelled)

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5. (Previously Presented) The circulator of claim 1, further comprising an isolator optically coupled to the reflector.

6. (Previously Presented) The circulator of claim 1, wherein the non-reciprocal device includes a half wave plate and a Faraday rotator.

7. (Cancelled)

8. (Currently Amended) A method for transmitting light among a first input port, a first output port, and a second output port, the light having either a first polarization or a second polarization, the method comprising:

transmitting a light signal including a first and a second component having a first and second polarization, respectively, from the first input port ~~with the first polarization~~ onto a polarization beam splitter;

directing the first component of light onto a first reflector;

reflecting the first component of light onto a first non-reciprocal device;

changing the polarization of the first component of light from the first polarization to a second polarization;

directing the first component of light into a first output port;

directing the second component of light onto a second non-reciprocal device;

maintaining the polarization of the second component of light as the second component passes through the second non-reciprocal device; and

directing the second component of light into the second output port substantially contemporaneously in time with the directing of the first component of light into the first output port.

9-11. (Cancelled)

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12. (Previously Presented) The method of claim 8, wherein directing the first component of light into the first output port includes:

directing the first component of light into the first output port through a polarizer.

13. (Previously Presented) The method of claim 8, wherein directing the second component of light into the second output port includes:

directing the second component of light into the second output port through a polarizer.

14. (Currently Amended) The method of claim 8, wherein transmitting a first and a second ~~forward~~ component of light onto a polarization beam splitter includes:

sending the first and the second component of light onto a polarization beam splitter through an isolator.

15-17. (Cancelled)

18. (Currently Amended) A circulator, comprising:

first and second input ports, the first input port being operable to receive a first light signal of a first polarization and the second input port being operable to receive a second light signal of the first polarization a receipt of both being substantially contemporaneously in time;

a first reflector optically coupled to the first input port;

a non-reciprocal device optically coupled to the second input port and operable to convert the second light signal of the first polarization into a second light signal of a second polarization;

a polarization beam splitter optically coupled to the first reflector and to the non-reciprocal device, and operable to pass light of the first polarization and reflect light of the second polarization;

a second reflector optically coupled to the polarization beam splitter, the second reflector being operable to maintain a polarization of the first and the second light signals; and

an output port optically coupled to the second reflector and operable to receive the first light signal of the first polarization and the second light signal of the second polarization.

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19. (Previously Presented) The circulator of claim 18, further comprising a polarizer optically coupled to the non-reciprocal device.
20. (Previously Presented) The circulator of claim 18, further comprising an isolator optically coupled to the second reflector.
21. (Previously Presented) The circulator of claim 18, wherein the non-reciprocal device includes a half wave plate and a Faraday rotator.